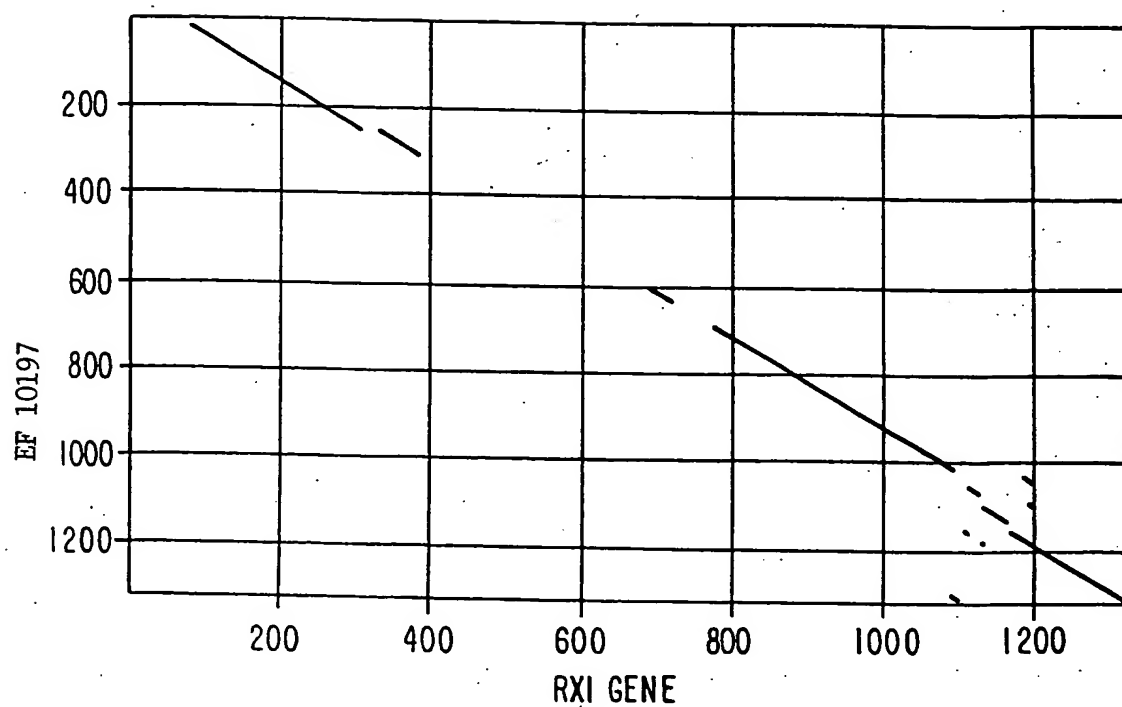


WINDOW SIZE = 30 STRAND = BOTH
MIN. 96 SCORE = 70 JUMP = 1
HASH VALUE = 6

FIG. 1

SCORING MATRIX: DNA DATABASE MATRIX

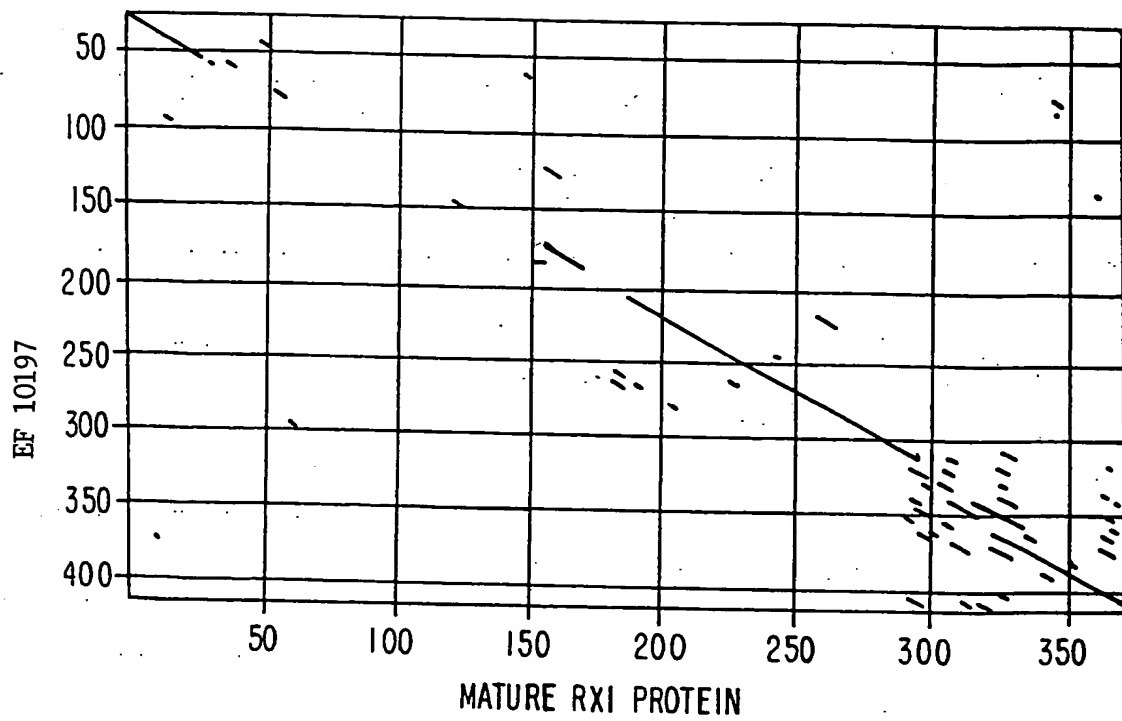


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FIG. 2

WINDOW SIZE = 8
MIN. 96 SCORE = 70
HASH VALUE = 2

SCORING MATRIX: pam250matrix



| | | | | | | |
|-----------|------------|-------------|-------------|------------|------------|-----------|
| Bg6692a | LKEIDESDSE | DYVKEGLRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Bg8838a | LKEIDESDSE | DYVKEGLRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Bg9739a | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Db16aa | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| L81905a | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Bg8743a | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Db11a | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Ac94a | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |
| Consensus | LKEIDESDSE | DYVKEGELRAP | LQSELDAAKQA | KLSKLEELSD | KIDELDAEIA | LEKNDVEDF |

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| | | | | | |
|-----------|------------|------------|------------|------------|---|
| Bg6692a | KNSNGEQAEQ | YRAAAEEDLA | AKQAELEKTE | ADLKKAVNEP | E |
| Bg8838a | KNSNGEQAEQ | YRAAAEEDLA | AKQAELEKTE | ADLKKAVNEP | E |
| Bg9739a | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| Db16aa | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| L81905a | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| Bg8743a | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| Db11a | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| Ac94a | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |
| Consensus | KNSDGEQAGQ | YLAAGGEDLI | AKKAELEKTE | ADLKKAVNEP | E |

FIG. 3

| | | | | | | |
|-----------|-------------|-------------|-------------|------------|------------|-------------|
| Ef1019a | LKEIDESDSE | DYVKEGFRAP | LQSELDAAQA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| RX1a | LKEIDESSE | DYAKEGFRAP | LQSKLDAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| Wu2a | LKEIDESSE | DYAKEGFRAP | LHSELDAAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| Db15a | LKIDIDESSE | DYAKEGFRAP | LQSELDAAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| Ef6796a | LKEINIDESSE | DYAKEGFRAP | LQSKLDAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| 0922134a | LKEIDESDSE | DYVKEGFRAP | LQSKLDAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| Bg9163a | PKRIKSLSQK | VXLLKXVCRAP | LQSKLDAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |
| Consensus | LKEIDESDSE | DYAKEGFRAP | LQSKLDAKKA | KLSKLEELSD | KIDELDAEIA | KLEDDQLKAAE |

| | | | | | |
|-----------|--------|-------------|-------------|------------|------------|
| Ef1019a | ENNNVE | EGLEKTTIAAK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| RX1a | ENNNVE | EGLEKTTIAAK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| Wu2a | ENNNVE | EGLEKTTIAAK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| Db15a | GNNNVE | EGLEKTTIAEK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| Ef6796a | GNNNVE | EGLEKTTIAEK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| 0922134a | GNNNVE | EGLEKTTIAEK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| Bg9163a | GNNNVE | EGLEKTTIAEK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |
| Consensus | GNNNVE | EGLEKTTIAEK | KAEELEKTEAD | LKKAVNNEPE | LKKAVNNEPE |

FIG. 4

EISNLEILLG
EISNLEILLG
EISNLEILLG
EISNLEILLG

LPNKVSIDLEK
LPNKVADLEK
LPNKVADLEK
LPNKVADLEK

EAELDKKADG
EAELDKKADG
EAELDKKADG
EAELDKKADG

...LDKREAG
TQDELDKREA
TQDELDKREA
TQDELDKREA -

...LDPEGK
LLDNLDPGK
LLDNLDPGK
LLDNLDPGK

...LAKKQTELEK
LAKKQTELEK
LAKKQTELEK
LAKKQTELEK

Ac122a
Ef3296a
Bg8090a
Consensus

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DEEE
DEEE
DEEE
DEEE

AALNELGPDG
AALNELGPDG
AALNELGPDG
AALNELGPDG

ELEKTQKELD
ELEKTQKELD
ESEKTPKELD
ELEKTQKELD

LPNKKLATKKA
LPNKKLATKKA
LPNKKLATKKA
LPNKKLATKKA

GADSEDDTAA
GADSEDDTAA
GADPEDDTAA
GADSEDDTAA

Ac122a
Ef3296a
Bg8090a
Consensus

FIG.5

| | | | | | | | |
|-----------|------------|-------------|------------|-------------|-------|-------|--------------|
| Bg11703a | LEKAEAELEN | LLSTLDPPEGK | TQDELDKEAA | EAELENKKVEA | LPNQV | SELEE | ELSKLEDNLK60 |
| Bg7817a | LEKAGAGLGN | LLSTLDPPEGK | TQDELDKEAA | EAELENKKVEA | LPNQV | AELEE | ELSKLEDNLK60 |
| Ef5668a | LEDAELELEK | LLSTLDPPEGK | TQDELDKEAA | EAELENKKVEA | LPNQV | AELEE | ELSKLEDNLK60 |
| Bg7561a | LEKAGAGLGN | LLSTLDPPEGK | TQDELDKEAA | EAELENKKVEA | LPNQV | AELEE | ELSKLEDNLK60 |
| C nsensus | LEKAGAGLGN | LLSTLDPPEGK | TQDELDKEAA | EAELENKKVEA | LPNQV | AELEE | ELSKLEDNLK60 |

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| | | | | | | |
|-----------|-------------|-------------|-------------|-------------|----------|-----|
| Bg11703a | DAETNNVEDY | IKEGLEEEAIA | TKQAEELEKTP | KELDAAALNEL | GPDGDEEE | 108 |
| Bg7817a | DAETNNHVEDY | IKEGLEEEAIA | TKQAEELEKTP | KELDAAALNEL | GPDGDEEE | 108 |
| Ef5668a | DAETNNHVEDY | IKEGLEEEAIA | TKQAEELEKTP | KELDAAALNEL | GPDGDEEE | 108 |
| Bg7561a | DAETNNHVEDY | IKEGLEEEAIA | TKQAEELEKTP | KELDAAALNEL | GPDGDEEE | 108 |
| C nsensus | DAETNNHVEDY | IKEGLEEEAIA | TKQAEELEKTP | KELDAAALNEL | GPDGDEEE | 108 |

FIG.6

Clade 5

ATCC6303

| | | | | | |
|-------------|-------------|------------|------------|------------|-------------|
| LED SGLGLEK | VLA TLDPGGE | TPDGLDKEAS | EDSNIGALPN | QVSDLENQVS | ELDREVTRLP |
| SDLKDTEGNN | VGDYVKGGL | KALTDKVGGL | NNTPKALDTA | PKALDTALNE | LGP DGD EEE |

FIG. 7

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Clade 6

BG6380

| | | | | | |
|------------|------------|-------------|------------|-----------|------------|
| QALYESTQEQ | IEELKDYNEQ | ISEGEETLIL | AIQNKISDLD | DKIAEAKKL | ADSQNGEGVE |
| DYWTSGDEDK | LEKLQAEQDE | LQAE LDQLLD | EVDGQE | | |

FIG. 8

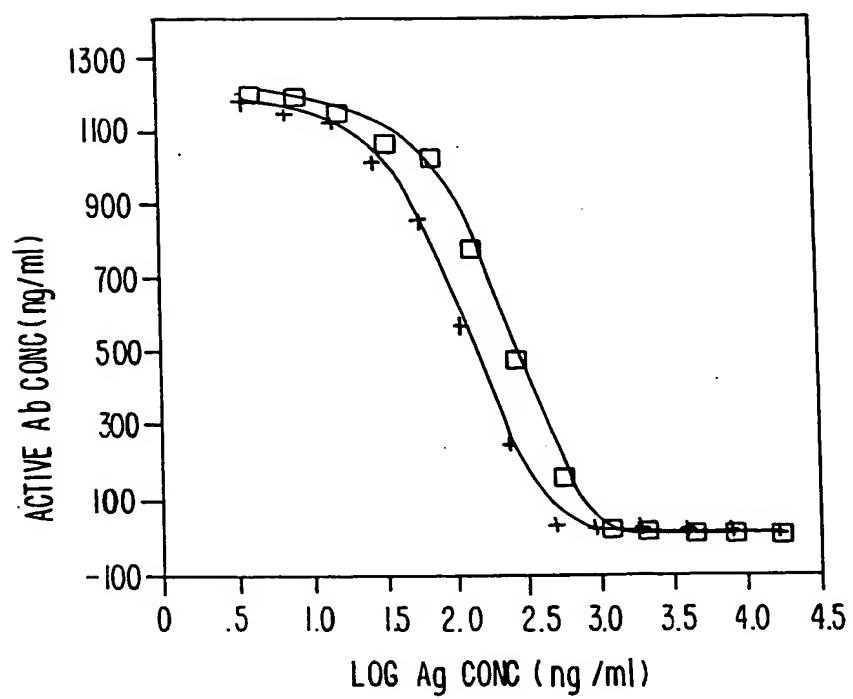
FIG. 9

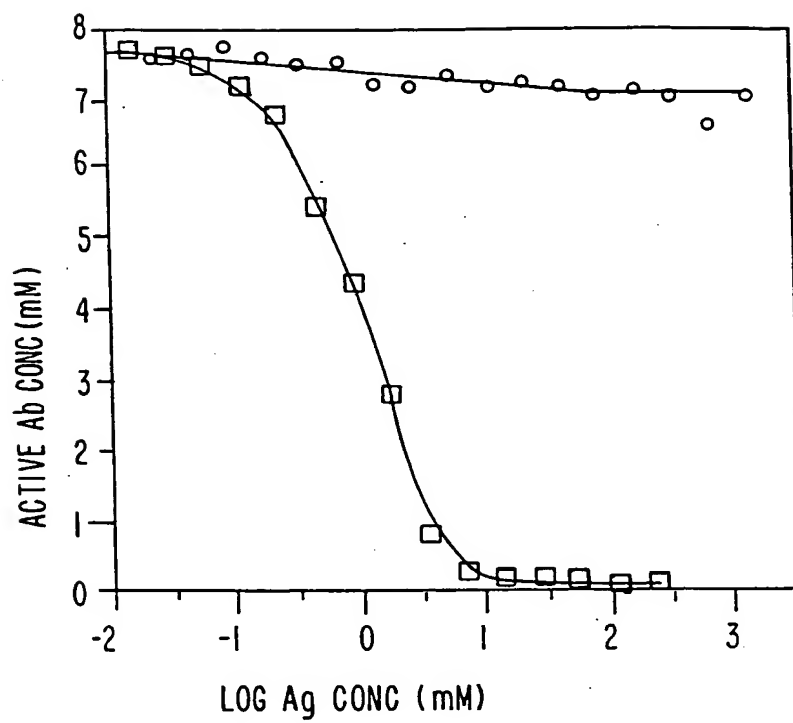
FIG. 10

FIG. 11